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MSDS Information

Section 1. CHEMICAL PRODUCT SECTION

Product Name: FLUX REMOVER
Product Number: 1621-10S
General Use: Removal of flux from circuit boards
Product Description:

MANUFACTURER: Tech Spray, Inc.
P.O. Box 949
Amarillo, TX 79105-0949
PHONE: 806/372-8523
FAX: 806/372-8750

For Chemical Emergency, Spill, Leak, Fire Exposure, or Accident Call CHEMTREC DAY OR NIGHT 1-800-424-9300.

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Section 2. COMPOSITION / INFORMATION ON INGREDIENTS

CHEMICAL	C.A.S. Number	Weight %
Isopropanol	67-63-0	50-55
Ethanol	64-17-5	5-10
2-Methyl-2-propanol	75-65-0	<<1
Dimethyl Ketone	67-64-1	10-12
Cyclotetramethylene Oxide	109-99-9	20-25
Acetic Acid, Propyl Ester	109-60-4	5-10
Carbon Dioxide	124-38-9	1-5

OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200):

	Exposure Limits 8 Hours TWA (PPM)		
	OSHA PEL	ACGIH TLV	Supplier
Isopropanol	400	400	
Ethanol	1000	1000	
2-Methyl-2-propanol	100	100	
Dimethyl Ketone	750	750	
Cyclotetramethylene Oxide	200	200	
Acetic Acid, Propyl Ester	200	200	
Carbon Dioxide	10,000	10,000	

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Section 3. HAZARD IDENTIFICATION

Emergency Overview: Flammable Aerosol

Potential Health Effects:

INHALATION: Major route of exposure. Vapor is heavier than air and can cause suffocation by reducing the available oxygen for breathing. Breathing high concentrations of vapor may cause light-headedness, giddiness, shortness of breath, confusion, and may lead to narcosis, cardiac irregularities, unconsciousness or even death.

EYES: Liquid can cause slight, temporary irritation with slight temporary

corneal injury. Vapors can irritate eyes.

SKIN: Product may cause skin irritation. Repeated of prolonged contact may cause redness with burning, drying, and cracking of skin. This product may be absorbed through abraded skin.

INGESTION: This product is toxic by ingestion. Ingestion may cause irritation of the digestive tract. Signs of nervous system depression (e.g. drowsiness, dizziness, loss of coordination, and fatigue). Nausea and vomiting will most likely occur.

This product has not been classified as a carcinogen or a probable carcinogen by NTP, IARC, or OSHA.

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Section 4. FIRST AID MEASURES

Inhalation:

Move to fresh air in case of accidental inhalation of vapors. If victim has stopped breathing, give artificial respiration. Call for prompt medical attention.

Eye Contact:

Flush eyes with large amounts of water for 15 minutes or until irritation subsides. If irritation persists, get medical attention.

Skin Contact:

Remove contaminated clothing (including shoes) and wash before reuse. Flush with large amounts of water. Use soap if available. If irritation persists, seek medical attention.

Ingestion:

Do not induce vomiting unless directed by a physician. If conscious and alert, give two glasses of water. Seek medical attention immediately.

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Section 5. FIRE FIGHTING MEASURES

Flash Point & Method: 53 F, TCC Method
Flammable Limits: LEL: NE on Blend UEL: NE on Blend
Autoignition Temperature: 680 F for Isopropanol
Calculated Heat of Combustion 29.1 kj/g NFPA Level 2 Aerosol

GENERAL HAZARD:

Vapors from this product may travel or be moved by air currents and ignited by pilot lights, other flames, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from product handling point. Vapors may settle in low or confined areas, or travel a long distance to an ignition source and flash back explosively. This material may produce a floating fire hazard in extreme fire conditions.

FIRE FIGHTING INSTRUCTIONS:
Fire fighters should wear self contained, positive-pressure breathing apparatus and avoid skin contact.

FIRE FIGHTING EQUIPMENT:
Water, foam, dry chemical, carbon dioxide.
HAZARDOUS COMBUSTION PRODUCTS:
Smoke, fumes and oxides of carbon.

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Section 6. ACCIDENTAL RELEASE MEASURES

LAND SPILL:
Ventilate area well and avoid breathing vapors. Pick up paper and place in sealed containers for disposal.

WATER SPILL: Miscible in water. Contain and dispose of properly

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Section 7. HANDLING AND STORAGE

STORAGE TEMPERATURE: Ambient
STORAGE PRESSURE: Atmospheric

GENERAL:
Keep container closed when not in use. Store in cool, well ventilated place out of direct sunlight and away from incompatible materials. (See STABILITY AND REACTIVITY Section 10.) Follow all MSD Sheet and Label warnings even after container is emptied.

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Section 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering Controls:
(X) Local Exhaust ventilation acceptable.
( ) Mechanical ventilation recommended.
( ) Use explosion-proof ventilation equipment.
(X) Do not use in confined spaces without mechanical ventilation equipment.
See section 2 for component exposure guidelines.

Personal Protection:
RESPIRATOR:
If concentrations are over the exposure limit and are known, air purifying respirator with Organic Vapor Cartridges may be acceptable. Refer to cartridges for acceptable levels. If concentrations are over exposure limit and are unknown, use a supplied air respirator.

HAND PROTECTION:
(X) Gloves recommended

(X) Solvex	(X) Neoprene
( ) Butyl	(X) Buna
( ) Natural Latex	( ) Cotton/Jersey

EYE PROTECTION:
(X) Safety Glasses ( ) Chemical Goggles ( ) Full Face Shield

OTHER RECOMMENDATIONS:

( ) Rubber Boots ( ) Splash-proof chemical resistant suit/apron

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Density	0.786	pH	NA
Boiling Point	80C / 176F	% Volatile	100
Freezing Point	-88C/ -127F	% Solids	0
Vapor Density (Air=1):	2.1	Evaporation Rate (H2O=1)	NIF
Solubility in Water	94	Viscosity	N/A
Molecular Weight	N/A (mixture)	Physical State	LIQUID
Non-Exempt VOC (g/l)	784	Odor	Alcohol

Appearance: Clear water-white liquid with alcoholic odor.

Section 10. STABILITY AND REACTIVITY

GENERAL:
STABLE
INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:
Contact with open flame, heat.
Reactive alkali metals, strong acids & bases.
HAZARDOUS DECOMPOSITION:
Combustion yields carbon oxides.

Section 11. TOXICOLOGICAL INFORMATION

RESULTS OF COMPONENT TOXICITY TEST PERFORMED:

Dimethyl Ketone:	Skin-Rabbit LD50 = 20 g/KG
	Oral-RAT LD50 = 5800 mg/Kg
Isopropanol:	Oral Rat LD50 = 5045 mg/Kg
	Skin Rabbit LD50 = 12800 mg/kg

HUMAN EXPERIENCE:
Long term repeated oral exposure to ethanol may result in the development of progressive liver injury with fibrosis.

Repeated ingestion of ethanol by pregnant mothers has been shown to adversely affect the central nervous system of the fetus, producing a collection of effects which together constitute the fetal alcohol syndrome. These include mental and physical retardation, disturbances of learning, motor and language deficiencies, behavioural disorders, and small head size.

Section 12. ECOLOGICAL INFORMATION

FURTHER INFORMATION:

Cyclotetramethylene Oxide:
Inhibition of cell multiplication starts at 580 mg/l for Pseudomonas putida.

Does not contain ozone depleting materials.

Section 13. DISPOSAL CONSIDERATIONS

RCRA 40 CFR 261 Classification: Liquid D001

Federal, State, and Local laws governing disposal of materials can differ. Ensure proper disposal compliance with proper authorities before disposal.

Section 14. TRANSPORTATION INFORMATION

U.S. DOT Information
- Proper Shipping Name: CONSUMER COMMODITY ORM-D
- Hazard Class: NA
- Packaging Group: NA
- UN Number: NA
- Limitations: NA

IATA
- Proper Shipping Name: CONSUMER COMMODITY ID8000
- Hazard Class: 9
- Packing Group: NA
- UN Number: ID8000
- Limitations: FOR DOMESTIC SHIPMENTS ONLY/FOR INTERNATIONAL SHIPMENTS PLEASE CONTACT TECH SPRAY'S SHIPPING DEPARTMENT CARGO AIRCRAFT ONLY

IMO
- Proper Shipping Name: AEROSOLS
- Class: 2.1
- UN Number: UN1950
- Packaging Group: NA
- EMS: 2-13
- MFAG: 305-306
- Marine Pollutant: NA
- Canadian TDG: NA
- IMDG Page: 2102

Section 15. REGULATORY INFORMATION

UNITED STATES FEDERAL REGULATIONS:

MSDS complies with OSHAs Hazard Communication Rule, 29 CFR 1910.1200.

CERCLA/SUPERFUND, 40 CFR 117, 302:

Cyclotetramethylene Oxide	(109-99-9)	20.5%	RQ 1000 lbs
Dimethyl Ketone	(67-64-1)	11.6%	RQ 5000 lbs

SARA SUPERFUND AND REAUTHORIZATION ACT OF 1986

TITLE III Sections 302, 311, 312 and 313:
Section 302 - Extremely hazardous substances (40 CFR 355):
--- None of the chemicals are Section 302 hazards ---

Section 311/312 - Material Safety Data Sheet Requirements (40 CFR 370)
( ) By our hazard evaluation, this product is non-hazardous.
(X) By our hazard evaluation, this product is hazardous. It should be reported under the following EPA hazard.
(X) Immediate (acute) health hazard
( ) Delayed (chronic) chronic health hazard
( ) Sudden release of pressure hazard
( ) Reactive hazard
(X) Fire

Section 313 - List of Toxic Chemicals (40 CFC 372)
This product contains the following chemicals (at levels of 1% or greater) which are found on the 313 list of Toxic Chemicals.

CHEMICAL	C.A.S. NUMBER	WEIGHT %
Dimethyl Ketone	67-64-1	11.6

TOXIC SUBSTANCE CONTROL ACT (TSCA): All substances are TSCA Listed.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA 40 CFR 261) Subpart C & D:
Refer to Section 11. for RCRA classification.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 (FORMERLY SECTION 307), 40 CFR 116 (FORMERLY SECTION 311)
This product contains the following chemicals which are listed:

CHEMICAL	C.A.S. NUMBER	WEIGHT %

CLEAN AIR ACT: --- No Information ---

STATE REGULATIONS:
CALIFORNIA PROPOSITION 65:
This product contains the following ingredients which appear on the California proposition 65 list:

CHEMICAL	C.A.S. NUMBER	WEIGHT %
--- None of the chemicals are on the Proposition 65 list ---		

INTERNATIONAL REGULATIONS:
CANADA WHMIS: Regulated A, B.5, D.2.B
EUROPE EINECS NUMBERS: Isopropanol 200-661-7

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Section 16. OTHER INFORMATION

LABEL INFORMATION:
European risk and Safety Phrases: R11; S7, 16
European Symbols Needed: Flammable
Canadian WHIMS Symbols: Toxic, Flammable, Compressed Gas

NFPA HAZARD RATING:

(3) Fire (1) Health (0) Reactivity

REVISION DATES, SECTIONS, REVISED BY:
13-NOV-95, Updated WHMIS Information, B. Riffel
28-Mar-96, Updated Section 5, G. Garrett
17-JAN-97, UPDATED SHIPPING INFORMATION, R. PRICHARD
20-OCT-98, Updated Section 12, B. Riffel
1-NOV-01, Reviewed, S. Redline

ABBREVIATIONS USED IN THIS DOCUMENT:
NE - Not Established, NA - Not Applicable, NIF - No Information Found
LTD-QTY - Limited Quanities.

REFERENCES:
Code of Federal Regulations (CFR)
The Sigma-Aldrich Library of Regulatory and Safety Data
Chemical Guide and OSHA Hazard Communication Standard
Various Federal, State & Local Regulations

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